Osteoarthritis in the adult population of Albania: A study protocol

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Abstract

Osteoarthritis is a degenerative disease of the joints which primarily affects older individuals and is characterized by erosions of articular cartilages, hypertrophy of bone edges (osteophytes), subchondrial sclerosis, as well as biochemical alterations and morphological changes of the synovial membrane of articular shell. Osteoarthritis is characterized by pains and dysfunction of the joints and, in advanced stages, by joint stiffness (rigidity), muscular atrophy and limb deformations. Osteoarthritis affects individuals from all ethnic groups, and from all the geographical locations. According to recent estimates, osteoarthritis affects about 10% of the population aged 60 years and above. Osteoarthritis may be considered as a multi-etiological condition caused by a combination of, or interaction between the following main risk factors: age, sex, menopause, genetic factors, nutritional (dietary) factors, bone density, as well as mechanical factors including overweight and obesity, trauma, muscular weakness, and hard physical activity.

To date, there are no reports about the magnitude and the distribution of osteoarthritis in the Albanian population. The available (now well-documented) evidence suggests a slight increase in the prevalence of this condition though. This may relate to the aging of the Albanian population. Indeed, according to the last report from the Institute of Statistics, the proportion of the population aged 65 years and above constituted up to 11% of the overall Albanian population in 2011. In this framework, in this article we describe a study protocol for assessment of the prevalence and distribution of osteoarthritis in the adult population of Albania.

Keywords: joints, osteoarthritis, rheumatology, risk factors, study protocol.

Introduction

Osteoarthritis is a degenerative disease of the joints which primarily affects older individuals and is characterized by erosions of articular cartilages, hypertrophy of bone edges *(osteophytes)*, sub-chondrial sclerosis, as well as biochemical alterations and morphological changes of the synovial membrane of articular shell (1-3). Osteoarthritis is characterized by pains and dysfunction of the joints and, in advanced stages, by joint stiffness (rigidity), muscular atrophy and limb deformations (2,4,5).

The prevalence of osteoarthritis varies in relation to the joints affected and the characteristics of the populations under investigation. In any case, osteoarthritis affects individuals from all ethnic groups, and from all the geographical locations (2). According to recent estimates, osteoarthritis affects about 10% of the population aged 60 years and above (6). The prevalence of osteoarthritis increases with age of individuals. Furthermore, the incidence of this condition is positively related to age. As a matter of fact, after the age of 40 years, the incidence of osteoarthritis increases significantly after each decade of life, involving all of the joints (2,4-6).

Besides the age, the incidence of osteoarthritis is positively linked to overweight and especially obesity (4-7). The negative effect of overweight and obesity is particularly related to the occurrence of osteoarthritis of the knees' joints. Therefore, a suitable control and management of overweight and obesity is a crucial element for prevention of osteoarthritis affecting especially the knees' joints. In addition to the knees, overweight and obesity may also affect other joints including coxofemoral osteoarthritis (8).

In general, osteoarthritis may be considered as a multi-etiological condition caused by a combination, overlapping, or interaction between the following main risk factors: age, sex, menopause, genetic factors, nutritional (dietary) factors, bone density, as well as mechanical factors including overweight and obesity, trauma, muscular weakness, and hard physical activity (2,9).

To date, there are no reports about the magnitude and the distribution of osteoarthritis in the Albanian population. The available (now well-documented) evidence suggests a slight increase in the prevalence of this condition though. This may relate to the aging of the Albanian population (10). Indeed, according to the last report from the Institute of Statistics, the proportion of the population aged 65 years and above constituted up to 11% of the overall Albanian population in 2011 (11).

In this framework, herewith we describe a study protocol for assessment of the prevalence and distribution of osteoarthritis in the adult population of Albania.

Aim of the study

The aim of this study protocol was to assess the prevalence and the distribution of osteoarthritis in the adult population of Albania. Furthermore, this survey aimed at assessing the prevalence of selected risk factors for osteoarthritis among Albanian men and women. In addition, another important objective of this study was the assessment of the quality of life of the individuals identified (diagnosed) with osteoarthritis.

Study design and setting

This study, conducted in Tirana, includes a time period of three years (between 2012 and 2015). The study design consists of a cross-sectional approach involving 1200 adult individuals of both sexes aged 50 years and above. Calculations of the sample size were made by use of WIN-PEPI (12) for a number of different hypotheses related to the prevalence and the associated factors of osteoarthritis.

Study population

The study population consists of the adult population aged 50 years and above pertinent to the following three sources:

- • Individuals residing in one of the munici-

palities of Tirana (capture area: health center No. 3);

• Individuals attending the health center *"Father Luigi Monti"* in Tirana, and;

• Individuals attending the Rheumatology Services at the University Hospital Center *"Mother Teresa"* in Tirana.

Data collection

The protocol of data collection consists of the following information which was collected in all study participants:

• *Demographic and socioeconomic characteristics:* age, sex, marital status, place of birth, place of residence, profession, ethnicity, income level, and living conditions.

• *Lifestyle/behavioral factors:* cigarette smoking, and alcohol consumption.

• *Anthropometric indices:* measurement of height and weight.

• *Genetic factors:* constitutional (hereditary) factors related to the parents and/or siblings.

• *Preexisting inflammatory diseases:* rheumatoid arthritis, ankylosing spondylitis, metabolic arthropathy, or other inflammatory diseases.

• *Occurrence of trauma:* accidental trauma, weight lifting, hard physical activities.

• *Joints affected by osteoarthritis:* hand joints, elbows, scapular joints, knee joints, coxofemoral joints, feet joints, or vertebral spine.

• *Clinical diagnosis of osteoarthritis:* pains, morning stiffness and its duration, crepitations, articular edemas, articular liquid, articular heat, alteration of articular function, alteration of articular shape, and alteration of muscular function.

• *Radiological diagnosis:* by means of digital X-ray, the diagnosis of osteoarthritis will be based on the narrowing of articular space, presence of osteophytes, subchondral sclerosis, or erosions of articular cartilages.

• *Biological diagnosis:* will be based on erythro-sedimentation, protein-C reactive (PCR), rheumatoid factor, and uricemia.

• *Degree of osteoarthritis:* will be classified into: grade I, grade II, grade III, or grade IV.

• *Treatment of osteoarthritis:* for individuals diagnosed with osteoarthritis and receiving treatment, it will be assessed the type of treatment including patients' health education and health promotion, use of analgesics, non-steroid anti-inflammatory drugs, use of intra-articular drugs, local therapy, physiotherapy, or surgery.

• *Quality of life:* regardless of the degree of osteoarthritis, all patients diagnosed with this condition will be asked about their self-perceived health status and quality of life.

Data analysis

The data analysis will consist of the following procedures:

• The point prevalence of osteoarthritis in the study sample and its respective 95% confidence interval will be calculated for the adult population of Albania.

• Chi-square test and Fisher's exact test will be used to assess the crude (unadjusted) association of osteoarthritis (yes vs. no) with categorical independent variables (predictors of osteoarthritis).

• Multivariable-adjusted binary logistic regression will be used to assess the independent predictors (determinants) of osteoarthritis in the study population. Odds ratios, 95% confidence intervals and their respective p-values will be calculated. Assumptions of the logistic models will be checked and formally assessed accordingly (13).

• The linear association between the degree of osteoarthritis and numerical covariates (independent variables) will be assessed by use of Spearman's correlation coefficients.

Conclusion

This study will be one of the first reports about the magnitude and the distribution of osteoarthritis in the adult population of Albania. From this perspective, this study will provide an important contribution to both the clinical practice and especially the epidemiology of this condition which is particularly

under-researched in Albanian settings. Findings from this study will help rheumatologists and family doctors in their routine clinical practice, and will support policymakers in Albania for a rationale and evidence-based decision-making.

Conflicts of interest: None declared.

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